

## *Exhibit 2*

### Amendments to the Specification

Please replace paragraph [0009] with the following amended paragraph:

[0009] In one aspect, the invention provides a pharmaceutical composition comprising a pharmaceutical carrier and at least one compound selected from the group consisting of ~~cobaltocene-octomet~~ cobaltocene-octamethyl and stigmastan-3,5,-diene. In accordance with a preferred embodiment, the composition comprises ~~cobaltocene-octomet~~ cobaltocene-octamethyl, stigmastan-3,5,-diene, and friedelin. In accordance with another preferred embodiment, the composition further comprises at least one compound selected from the group consisting of  $\alpha$ -caryophyllene,  $\beta$ -caryophyllene, caryophyllene oxide, cyclododecane, acetic acid, and a terpene.

Please replace paragraph [0012] with the following amended paragraph:

[0012] In accordance with yet another aspect of the invention, it is provided a method of inhibiting the growth of a mycobacterium, comprising administering a composition comprising a carrier and at least one compound selected from among ~~cobaltocene-octomet~~ cobaltocene-octamethyl, stigmastan, 3,5-diene, galoxolide, benzyl salicylate, eucalyptol, and  $\alpha$ -pinene. The mycobacteria is *M. avium*, *M. bovis*, *M. intracellulare*, *M. kansaii*, *M. leprae*, *M. marinum*, *M. phlei*, *M. scrofulaceum*, *M. smegmatis*, *M. fortuitum*, *M. tuberculosis*, or *M. ulcerans*.

Please replace paragraph [0013] with the following amended paragraph:

[0013] FIG. 1 is a Gas Chromatography/Mass Spectroscopy (GC/MS) analysis of an active fraction of *Mammea Americana*. The material was prepared by combination of 4 HPLC runs, concentrated to 1 drop to which about 0.3 ml methanol was added. 10  $\mu$ l were analyzed on GC/MS. The peaks were identified. The peak at 13 minutes is cobaltocene, 1,1',2,2',3,3',4,4'-~~octomet~~ octamethyl, the peak just past 30 minutes is stigmastan-3,5-dien, and the peak just past minute 36 is friedelin.

Please replace paragraph [0014] with the following amended paragraph:

[0014] FIG. 2 is a Gas Mass/Mass Spectroscopy (GC/MS) analysis of an active fraction of *Marchantaceae polymorpha*. The material was prepared by combination of 8 HPLC runs, concentrated to 1 drop to which about 0.3 ml methanol was added. 10  $\mu$ l were analyzed on GC/MS. The peaks were identified. The peak at 13 minutes is cobaltocene, 1,1',2,2',3,3',4,4'-~~octomet~~ octamethyl.

Please replace paragraph [0031] with the following amended paragraph:

[0031] Methylene chlorine extracts from *Mammea Americana*, *Marchantaceae polymorpha*, or *Callistemon citrinus* were separated on a HPLC system. Active fractions were identified. Active compounds were next identified. The compounds from *Mammea Americana* include ~~cobaltocene-octomet~~ cobaltocene-octamethyl, stigmastan-3,5-diene, and friedelin. In addition, consideration of the chemical properties of the compounds in the extract before fractionation indicates that one or more of  $\alpha$ -caryophyllene,  $\beta$ -caryophyllene, caryophyllene oxide, cyclododecane, acetic acid, and a terpene may also be present in trace (i.e. undetectable by GC/MS under the conditions described herein) quantities.

Please replace paragraph [0032] with the following amended paragraph:

[0032] The compounds from Marchantaceae polymorpha include acetic acid, ~~eobaltoene-oetomet~~ cobaltocene-octamethyl, and  $\beta$ -myrceane. In addition, consideration of the chemical properties of the compounds in the extract before fractionation indicates that hexadecanoic acid may also be present in trace quantities.

Please replace paragraph [0034] with the following amended paragraph:

[0034] In accordance with another aspect of the invention, a pharmaceutical composition comprising a pharmaceutical carrier and at least one compound selected from the group consisting of ~~eobaltoene-oetomet~~ cobaltocene-octamethyl or stigmastan-3,5,-diene is provided. In accordance with a preferred embodiment, the pharmaceutical composition comprises ~~eobaltoene-oetomet~~ cobaltocene-octamethyl, stigmastan-3,5,-diene, and friedelin. The pharmaceutical composition may further comprise at least one compound selected from the group consisting of  $\alpha$ -caryophyllene,  $\beta$ -caryophyllene, caryophyllene oxide, friedelin, cyclododecane, acetic acid, and a terpene.

Please replace paragraph [0054] with the following amended paragraph:

[0054] In accordance with another aspect of the invention, a method of inhibiting the growth of a mycobacterium, comprising administering a composition comprising a carrier and at least one compound selected from among ~~eobaltoene-oetomet~~ cobaltocene-octamethyl, stigmastan, 3,5,-diene, galoxolide, benzyl salicylate, eucalyptol, and  $\alpha$ -pinene is provided. The composition is appropriately formulated for storage and is destined for use as a cleaning agent. Accordingly, it may further comprise cleaning agents which would not interfere with the chemical activity of the above listed chemical agents. The formulation of such a cleaning solution and inclusion of general cleaning agents can easily be done by a skilled artisan, given theoretical chemistry considerations, and the stability and effectiveness of the solution can be easily tested by the skilled artisan. The testing would include a bio-assay such as the anti-microbial assays. The preparation and composition of such a cleaning solution is also within the scope of the invention.

Please replace Table 5 with the following amended Table 5:

TABLE 5  
SUMMARY OF FRACTIONATION, ZOI AND GC/MS FINDINGS REGARDING ANTI-MICROBIAL COMPOUNDS/FRACTIONS

	HPLC Fractions	Fraction Range*	<i>E-Coli</i> 25922 ZOI (mm)	<i>M. Smegmatis</i> ATCC 607 ZOI (mm)	Compounds Identified in Fraction	Additional Compounds
<i>Mammea Americana</i> L.C. (Guttiferaceae)	1	0-2.5 min.	8	8		
	2	3.0-5.0 min.	13	10	Acetic acid, cobaltocene-octamethyl Stigmastan-3,5-diene, friedelin, terpene	$\alpha$ -caryophyllene; $\beta$ -caryophellene; caryophellene oxide; cyclododecaine
<i>Marchantaceae polymorpha</i> L.C. (Marchantaceae)	1	0-1.5 min.	14	13	Acetic acid, Cobaltocene-octamethyl $\beta$ -myrceane	Hexadecanoic acid
	2	Insufficient				
<i>Callistemon citrinus</i> (Curtis) Skeels (Myrtaceae)	1	0-1.25 min.	8	6		
	2	1.25-2.7 min.	12	8		
	3	4.0-5.0 min.	13	12	Acetic acid Galoxilide Benzyl salicylate Terpene Eucalyptol $\alpha$ -pinene	3-cyclohexane-1-methanol camphene 1,4-cycloprop-azulene phytol
			14	17		
<i>Streptomycin</i> **						

\*Based on retention times.

\*\*Control consists of 10 micrograms streptomycin in the same solvent as the sample on the same 6 mm disc.

Please replace the Abstract with the following paragraph

The invention provides a pharmaceutical composition which comprises a pharmaceutical carrier and at least one compound selected from the group consisting of ~~eobaltacene-octgomet~~-cobaltocene-octamethyl, stigmastan-3,5-diene, galoxolide, benzyl salicylate, eucalyptol, and  $\alpha$ -pinene. Also provided is a method of preparing a composition having antimicrobial activity comprising extracting a plant material in an organic solvent, contacting the extracted material to a chromatographic column, and eluting from the chromatographic column with a mobile polar phase to obtain a composition. The plant material is from *Mammea Americana*, *Marchantaceae polymorpha*, or *Callistemon citrinus*. Also provided is a method of inhibiting the growth of a mycobacterium, comprising administering a composition comprising a carrier and at least one compound selected from among ~~eobaltacene-octgomet~~-cobaltocene-octamethyl, stigmastan, 3,5-diene, friedelin, galoxolide, benzyl salicylate, eucalyptol, and  $\alpha$ -pinene.

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